In the Claims

Applicant submits below a complete listing of the current claims, including marked-up claims with insertions indicated by underlining and deletions indicated by strikeouts and/or double bracketing. This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1. (Currently amended) A terminal for generating an electromagnetic field adapted to communicating with at least one transponder entering this field, including:

an oscillating circuit adapted to being excited by a high-frequency remote supply signal of the transponder;

a phase demodulator for detecting possible data transmitted by the transponder by modulating, at a rate of a sub-carrier, a load that it forms on the terminal's oscillating circuit;

and including:

means for regulating a signal phase in the terminal's oscillating circuit in response to a reference value having a long response time as compared to said sub-carrier;

means for measuring variables linked to a current in the oscillating circuit and to the voltage thereacross; ~~and~~

means for comparing present values of these variables with predetermined values<u>; and</u>

<u>means for deactivating said phase regulation means</u>.

2. (Currently amended) The terminal of claim 1, further including:

~~means for deactivating said phase regulation means; and~~

means for forcing a value of a settable element of the oscillating circuit.

3. (Original) The terminal of claim 2, wherein said settable element is formed of a variable capacitive element of the oscillating circuit of the terminal.

4. (Original) The terminal of claim 2, wherein the settable element is common to the phase regulation means and to the forcing means.

5. (Currently amended) A method for controlling a terminal for generating an electromagnetic field adapted to communicating with at least one transponder entering this field, the terminal including an oscillating circuit adapted to being excited by a high-frequency remote supply signal of the transponder, a phase demodulator for detecting possible data transmitted by the transponder by modulating, at a rate of a sub-carrier, a load that it forms on the terminal's oscillating circuit; means for regulating a signal phase in the terminal's oscillating circuit in response to a reference value having a long response time as compared to said sub-carrier, means for measuring variables linked to a current in the oscillating circuit and to the voltage thereacross, and means for comparing present values of these variables with predetermined values, the method including:

exploiting the results of the comparison means to detect the presence of a transponder in the terminal's field; and

deactivating the phase regulation means.

6. (Original) The method of claim 5, wherein said predetermined values correspond to values measured and stored during an off-load operation of the terminal, while no transponder is present in its field.

7. (Currently amended) The method of claim 5, wherein the step of deactivating is performed if there is an absence of a useful signal of sufficient amplitude to enable detection of data by the demodulator and a transponder has been detected by the comparison of the current and predetermined values, the method further including, in the absence of a useful signal of sufficient amplitude to enable detection of data by the demodulator and if a transponder has been detected by the comparison of the current and predetermined values, ~~of:~~

~~deactivating the phase regulation means; and~~

forcing the value of the settable element of the oscillating circuit to a value adapted to modifying an impedance of the terminal's oscillating circuit while maintaining the transponder's remote supply.

8. (Original) The method of claim 7, wherein the forcing value is selected to avoid for said variables to recover said predetermined values.

9. (Previously presented) The method of claim 8, including, to select the forcing value, of:

calculating a present imaginary part of an impedance of the terminal's oscillating circuit;

comparing a present absolute value of this imaginary part with a predetermined limiting value for:

a) if the a present absolute value is greater than the limiting value, choosing a forcing value giving to the impedance of the oscillating circuit an imaginary part of a same absolute value but of opposite sign with respect to the present imaginary part, or

b) if the present absolute value is smaller than or equal to the limiting value, choosing a different forcing value according to whether the present imaginary part is positive or negative.

10. (Original) The method of claim 9, including, in case b, selecting a forcing value depending on the off-load value of the setting element with a proportionality coefficient which:

a') if the present imaginary part is negative, is greater than one; and

b') if the present imaginary part is positive, is smaller than one.

11. (Original) The method of claim 9, including selecting a forcing value $C1_f$ which:

a') if the present imaginary part is negative, respects the following relation:

; and

b') if the present imaginary part is positive, respects the following relation:

where $C1_{off\text{-}load}$ represents the off-load capacitance of the setting element and where k_{max} represents the maximum coupling coefficient between the transponder and the terminal.

12. (Previously presented) The terminal of claim 1, further comprising:

a circuit to determine the presence of a transponder in the terminal's field by exploiting the results of the comparison means.

13. (Previously presented) The terminal of claim 12, wherein the circuit comprises a microprocessor.

14. (Previously presented) The terminal of claim 1, wherein said predetermined values correspond to values measured and stored during an off-load operation of the terminal, while no transponder is present in the electromagnetic field.

15. (Withdrawn) A method of determining whether at least one transponder is present in an electromagnetic field generated by an oscillating circuit, comprising:

measuring at least one present value of at least one electrical property of the oscillating circuit; and

comparing the at least one present value with at least one previously measured value of the at least one electrical property that was measured when no transponder was present in the electromagnetic field.

16. (Withdrawn) The method of claim 15, further comprising:

determining at least one transponder is present in the electromagnetic field if the at least one present value and the at least one previously measured value are not equal.

17. (Withdrawn) The method of claim 15, wherein a first of the at least one electrical property corresponds to a current in the oscillating circuit.

18. (Withdrawn) The method of claim 15, wherein a first of the at least one electrical property corresponds to a voltage across the oscillating circuit.

19. (Withdrawn) The method of claim 18, wherein a second of the at least one electrical property corresponds to a current in the oscillating circuit.

20. (Withdrawn) The method of claim 19, wherein the measuring includes measuring a present value of the first electrical property and measuring a present value of the second electrical property, and

wherein the comparing includes comparing a value of a ratio of the present values of the first electrical property and the second electrical property to a ratio of a previously measured

value of the first electrical property and a previously measured value of the second electrical property.

21. (Withdrawn) The method of claim 15, further comprising:

in response to the comparing, forcing a value of an electrical property of the oscillating circuit to a particular value.

22. (Withdrawn) The method of claim 21, wherein the oscillating circuit includes a variable capacitive element, and

wherein the forcing includes controlling a value of the variable capacitive element.

23. (Withdrawn) The method of claim 21, further comprising:

calculating a present imaginary part of an impedance of the oscillating circuit;

comparing a present absolute value of this imaginary part with a predetermined limiting value;

if the present absolute value is greater than the limiting value, choosing a forcing value that forces an imaginary part of the impedance of the oscillating circuit to a same absolute value as, but opposite sign of, the present imaginary part; and

if the present absolute value is smaller than or equal to the limiting value, choosing a different forcing value according to whether the present imaginary part is positive or negative.

24. (Withdrawn) The method of claim 15, further comprising:

if the comparing determines that the at least one present value and the at least one previously measured value are not equal, preventing regulation of a signal phase of the oscillating circuit.

25. (Withdrawn) A system for determining whether at least one transponder is present in an electromagnetic field generated by an oscillating circuit, comprising:

a first circuit to measure at least one present value of at least one electrical property of the oscillating circuit; and

a second circuit to compare the at least one present value with at least one previously measured value of the at least one electrical property that was measured when no transponder was present in the electromagnetic field.

26. (Withdrawn) The system of claim 25, wherein the first circuit includes a means for measuring the at least one present value.

27. (Withdrawn) The system of claim 25, wherein the second circuit includes means for comparing the at least one present value with the at least one previously measured value.

28. (Withdrawn) The system of claim 25, wherein the second circuit comprises a microprocessor.

29. (Withdrawn) The system of claim 25, wherein the second circuit is operative to determine at least one transponder is present in the electromagnetic field if the at least one present value and the at least on previously measured value are not equal.

30. (Withdrawn) The system of claim 25, wherein a first of the at least one electrical property corresponds to a current in the oscillating circuit.

31. (Withdrawn) The system of claim 25, wherein a first of the at least one electrical property corresponds to a voltage across the oscillating circuit.

32. (Withdrawn) The system of claim 31, wherein a second of the at least one electrical property corresponds to a current in the oscillating circuit.

33. (Withdrawn) The method of claim 32, wherein the first circuit is operative to measure a present value of the first electrical property and to measure a present value of the second electrical property, and

wherein the second circuit is operative to compare a value of a ratio of the present values of the first electrical property and the second electrical property to a ratio of a previously

measured value of the first electrical property and a previously measured value of the second electrical property.

34. (Withdrawn) The system of claim 25, further comprising:

a first circuit to force a value of an electrical property of the oscillating circuit to a particular value in response to the comparison performed by the second circuit.

35. (Withdrawn) The system of claim 34, wherein the oscillating circuit includes a variable capacitive element, and wherein the third circuit is operative to control a value of the variable capacitive element.

36. (Withdrawn) The system of claim 34, wherein the second circuit is operative to calculate a present imaginary part of an impedance of the oscillating circuit, to compare a present absolute value of this imaginary part with a predetermined limiting value, to select, if the present absolute value is greater than the limiting value, a forcing value that forces an imaginary part of the impedance of the oscillating circuit to a same absolute value as, but opposite sign of, the present imaginary part, and to choose, if the present absolute value is smaller than or equal to the limiting value, a different forcing value according to whether the present imaginary part is positive or negative.

37. (Withdrawn) The system of claim 25, wherein the third circuit is operative to prevent a regulation of a signal phase of the oscillating circuit if the second circuit determines that the at least one present value in the at least one previously measured value are not equal.